

♀. Antennæ shorter and not so stout, subserrate, joints 1-3 partly or wholly testaceous, the others black; legs black.

Hab. W. AND E. CENTRAL AFRICA, Fort Sibut, Congo (*type of Pic*), Nyangwe (*Dr. Bequaert*: 29. xi. 1910: ♂, det. Pic), Anadi, Congo da Lemba, Yambata, Léopoldville, Bas-Kasaï, Mayumbé, Wombali, Coquilhatville, Manyema, &c. (*Mus. Congo Belge*: ♂ ♀), W. Ankole in Uganda (*S. A. Neave*: ♀).

The above description of the ♂ is taken from a specimen from Nyangwe named *H. testaceicornis* by Pic, but it does not agree with his diagnosis, in which he gives the antennæ as "non épaissies" and wholly testaceous in colour; a ♀, from Manyema, in the same collection was named by him *H. cribrarius*, Thoms.?, and two others, from Lac Leopold II., *H. azureus*, Er., var. These examples have the head densely rugulose, as he described.

There is a long series of this species in the Congo Museum, including a dozen males and several females, and a ♀ from Uganda in the British Museum seems to belong here.

[To be continued.]

XXIV.—*Descriptions and Records of Bees.*—LXXXIX.

By T. D. A. COCKERELL, University of Colorado.

Trigona leviceps, Smith.

Salem, S. India, April 14-16 (*G. R. Dutt*); Adderley, Nilgiris, 3000 ft., April 26 (*Dutt*); Mangalore, S. Canara, April 18-22 (*Dutt*). I also have it from Java, sent by A. Duchaussoy.

Nomada sedi, Cockerell.

In 'Entomological News,' xxx. p. 292, this was written *sede* by an oversight.

Habropoda fletcheri, sp. n.

♂.—Length about 13 mm., unusually slender; tongue about 9 mm.

Black, with the following parts bright lemon-yellow—scape in front, supra-clypeal band (with a median upward projection), sides of face up to a little above antennæ, clypeus

(which is long), labrum, and mandibles (except apex and basal tubercle); there is a narrow black band on each side of upper half of clypeus; maxillary palpi very long and slender, 6-jointed; third antennal joint dark red beneath, flagellum otherwise black, except a very faint brownish tint beneath; cheeks and pleura with long white hair; thorax above with light fulvous hair; tegulæ rufo-testaceous. Wings hyaline, faintly dusky, first r. n. meeting second t.-c. Abdomen narrow, the hind margins of the segments broadly testaceous; the surface with thin pruinose pubescence; apical segment triangular, dark; venter banded as the dorsum. Legs black basally; anterior femora with a stripe above and the apex broadly ferruginous; hind femora greatly swollen, black; tibiæ and tarsi ferruginous, hind tarsi dark, hind tibiæ broadly dark in middle, and with a large red apical lamina. The clypeus is hairy and without a keel.

Kumaon, Ramgarh, India, 6000 ft., Aug. 26, 1918 (*Fletcher*). Two males (no. 46).

Nearest to *H. magrettii*, Bingham, but less robust, with black hind femora and dark apex of abdomen.

Habropoda fulvipes, Cameron.

A male from the Khasia Hills, sent by Mr. Sladen as *H. moelleri*, is not that species, but evidently *fulvipes*. Cameron's supposed male *fulvipes* was something else, possibly not congeneric. In the male *fulvipes* the face below the antennæ is entirely rich chrome-yellow and the clypeus is carinated. The scape is yellow in front. The abdomen has the first two segments red.

Habropoda krishna, Bingham.

A specimen from the Khasia Hills (*Sladen*) bears a manuscript name by Friese, dedicating the species to Mr. Sladen. I am not aware that Friese has published it.

Habropoda hookeri, sp. n.

♀.—Length about 13 mm.

Robust, with abundant pale ochreous-tinted pubescence, not mixed with black; clypeus strongly rugose, very prominent, faintly keeled on apical half, with a transverse yellow band, broadest in middle, just before the apex; first r. n. joining second s. m. before the end.

This nearly agrees with *H. montana*, Rad., as described by Bingham, but must certainly be distinct, as the hind tibiæ

are not specially broadened or modified (their spurs are ferruginous and very long), and their inner side, instead of being bare and smooth, is densely covered with brownish hair. Other salient characters are:—Labrum with a ferruginous spot on each side at base; greater part of mandibles pale yellowish or cream-colour; tegulæ pale rufo-testaceous; hair on outer side of middle and hind tibiæ yellowish white (not bright ferruginous), some black hair near base of tibiæ; hair on inner side of hind basitarsi dark chocolate; wings brownish; nervures dark fuscous (not testaceous); hind margins of abdominal segments broadly pallid; fifth segment with a pale reddish fringe.

Simla, 7000 ft., Oct. 1907 (*H. M. L.*), Fletcher, 2 = type. Mussoorie, 7000 ft., Aug. 1906, also Fletcher, 2.

Dedicated to the memory of Sir Joseph Hooker.

Anthophora niveocincta, Smith.

Taru, Peshawar Dist., N.W. India, Oct. 17–21, 1914 (*Fletcher*, 4).

Anthophora cyaneotincta, sp. n.

♀.—Length about 11·5 mm.

Superficially exactly like *A. albigena*, Lep., except that the second to fourth abdominal bands are very delicately tinted with blue, though not at all shining. It also differs as follows:—Labrum distinctly larger and more quadrate; black clypeal patches not so large, leaving a dagger-shaped vertical light mark and broad-triangular lateral light areas (the lateral and supra-clypeal marks do not differ, and the scape is entirely black); fifth abdominal segment entirely black-haired, except for the long white hair at extreme sides; outer side of hind basitarsi with hair all black. The face-markings are creamy white.

In Friese's table of Palearctic species it runs to *A. albigena*, but in the labrum approaches *A. magnilabris*, Fedt.

Abbottabad, India, June 10, 1916 (*Fletcher*, 40).

Xylocopa phanerocephala, sp. n.

♂.—Length about 17·5 mm., width of abdomen 7·8 mm.

Tegument pure black, but face below level of antennæ bright lemon-yellow; labrum black, strongly punctured, with a smooth median band; scape long, black; flagellum, except first joint, obscurely brownish beneath; eyes large, but inner orbits parallel; cheeks and occiput with pale hair, front with

thin black hair; middle of mesothorax with very sparse punctures; thorax black-haired above, but anteriorly with a broad band of pale ochreous; mesopleura with pale ochreous-tinted hair, but posteriorly to this it is black. Legs black, with black hair, but long pale hair on anterior tarsi posteriorly, and some pale hair on their tibiæ; hind femora sharply keeled beneath; hind tibiæ robust and curved; tegulæ black or nearly, not punctured. Wings strongly suffused with brown, but not opaque, beautifully violaceous iridescent. Abdomen rather narrow, not very densely punctured, bare, with short black hair, long at apex, first segment black-haired; underside of abdomen with much pale ochreous hair.

Ootacamund, India, 7500 ft., Dec. 24-31, 1913 (*Fletcher*, 1).
Two specimens.

Rather like *X. collaris*, Lep., to which it runs in Bingham's table, but easily separated by the parallel orbits and other characters.

Prosopis absoluta, Cameron.

♀.—Chapra, Bengal; bred from munj-grass stems, April-May 1910 (*Mackenzie*: *Fletcher*, 10).

The markings are very pale, really cream-colour; the lunate spot which Bingham describes as being at the base of the clypeus is supraclypeal.

Tetraloniella chaprensis, sp. n.

♀.—Length about 10.5 mm., anterior wing 8 mm.

Robust, black, with the clypeus, most of labrum and of base of mandibles yellow; apical part of mandibles black, with an orange stripe; maxillary palpi five-jointed, joints measuring in μ : (2) 128, (3) 192, (4) 112, (5) 96; eyes reddish; facial quadrangle about square; hair of head pale, with an ochreous tint, brighter on occiput; scape and first two flagellar joints almost entirely black, rest of flagellum bright chestnut-red; thorax above with bright fox-red hair, dense and not very long; pleura with pale hair, becoming white beneath; tegulæ clear ferruginous. Wings strongly dusky; stigma and nervures ferruginous; second s.m. oblique, but scarcely narrowed above; first r. n. meeting second t.-c. Legs black, the tarsi ferruginous apically; hair of legs mainly pale ochreous, but dark on anterior tarsi, dark chocolate on middle tarsi, and black on inner side of hind tibiæ and basitarsi; on outer side of hind tibiæ and basitarsi it is stiff and white, glittering, but the tuft on hind knees is strongly reddened.

Abdomen black, the hind margins of the segments concolorous; basal half of first segment with pale ochreous hair; segments 2 and 3 with very broad, entire, felt-like basal hair-bands, so broad as to reach hind margin at extreme sides; fourth segment covered with such white hair except at sides of base narrowly, but the actual margin fringed with pale reddish; fifth and sixth with rusty-black hair.

Chapra, India (*Mackenzie: Fletcher*, no. 17).

Very distinct from the species known to me. Nurse has described two species of *Tetralonia* with clypeus yellow in female; the palpi have not been examined, so they may be referable to *Tetraloniella*. *T. chaprensis* differs from *T. phryne* (Nurse) by the bands on the abdomen being neither narrowed nor interrupted; and from *T. cassandra* (Nurse) by the lack of apical hair-bands on abdominal segments 2 and 3.

Tetralonia punctilabris, Cameron.

♀.—Peshawar, Khaibar Pass, Alimasjid, April 25, 1916 (*Fletcher*, 31).

This agrees with Cameron's description, except that the third abscissa of the radius is practically equal with the second, and Cameron says nothing about the hind margin of the first abdominal segment being broadly testaceous. Presumably it is the same species. It is related to *T. tricincta* (Erichs.).

Tetralonia pachysoma, n. n.

Habropoda lata, Cameron, Rec. Albany Mus. 1905, p. 200 (not *T. lata*, Provancher, 1888).

Dr. Brauns has examined Cameron's type, and finds it to be a *Tetralonia* allied to *T. braunsiana*, Friese.

Tetralonia leucopoda australior, subsp. n.

♂.—Hair on last two abdominal segments dark chocolate, instead of fawn-colour. Eyes pale green, more or less suffused with red.

Bellary District, Hampasagar, India, Aug. 31, 1912 (*Fletcher*); Ramakrishna, 20 = type. Godavari District, Annampalce, Dec. 19-22 (*T. V. R.*).

This is also very similar to *T. phryne* (Nurse) from Deesa, of which *T. glabricornis*, Cam., also collected by Nurse at Deesa, appears to be a synonym. Cameron describes *glabricornis* as having the small joints of tarsi pale testaceous and the first r. n. interstitial; in *australior* only the apical tarsal

joint is red, and the first r. n. joins second s. m. an appreciable distance from its apex.

Tetralonia punjaubensis, Cameron.

♂.—Lyallpur, Punjab, July 24, 1917 (*G. R. Dutt: Fletcher*, 21).

This is evidently Cameron's species, but the hair of the thorax is rich fulvous and the wing-nervures are dusky reddish, not black. The clypeus and labrum are polished, as if oiled.

Nomia aurifrons, Smith.

I have a male from F. Smith's collection which does not agree with Bingham's description, but Bingham knew only the female. My specimen agrees with male *aurifrons* as described by Westwood, who stated that it was his MS. *N. silhetica*. It seems possible that the supposed sexes may be distinct, in which case the name *silhetica* can be used for the species before me.

Nomia albofasciata, Smith.

This was described from Java, and the Indian so-called *albofasciata* of Bingham is evidently distinct. Bingham described the female; it seems possible that it may be identical with *N. argenteobalteata*, Cam., based on the male.

Nomia andrenina, Cockerell.

Both sexes from Chapra, India (*Mackenzie: Fletcher*, 16).

The female differs from the type in being smaller, with dark reddish middle of mandibles and legs with more red, but it is the same species. The male, hitherto unknown, is similar, but has the face and front densely covered with pale ochreous tomentum, flagellum elongated and conspicuously red near base beneath, wings strongly reddened; first two abdominal segments, before the apical depression, minutely rugose-punctate; hind legs not modified, their tarsi long; hind tibiae with a dusky suffusion on inner side, but the basitarsi clear pale yellowish red throughout.

Nomia fletcheri, sp. n.

♀.—Length about 10.5, anterior wing 8 mm.

Robust, black, with greatly enlarged tegulae, which are white, with a large brown patch; head broad and thick; tongue dagger-like; mandibles black, faintly reddish in

middle; clypeus shining, coarsely punctured, depressed in middle, the middle and base with much white hair; sides of face and front covered with spreading glittering white hair; scape long and curved, flagellum obscurely reddish near base; vertex polished, with large scattered punctures; mesothorax and scutellum polished, nearly bare, with very large irregular punctures, sparse on mesothorax; a thin band of white hair along posterior margin of mesothorax, and postscutellum and sides of prothorax (which are sharply margined) densely covered with white tomentum; posterior face of metathorax densely and coarsely punctured, the basal enclosure small, without plicæ. Wings faintly dusky, especially at apex; stigma small, dusky reddish, nervures fuscous; first r. n. meeting second t.-c.; third s.m. very long, as long as the other two combined; b. n. meeting t.-m. Legs black, the hind tibiæ and all the tarsi with much white hair, hair on inner side of hind tarsi very pale yellowish. Abdomen shining, the first two segments coarsely punctured, unusually large punctures at sides of first before the apical depression; bases of second and following segments with bands of white tomentum; apical margins of segments (very narrowly on first) testaceous, on third and fourth overlapped by a thin fringe of hair; apex of fifth segment with dense white hair.

Tarnab, Peshawar District, India, May 1916 (*Fletcher*, 37).

Apparently allied to *N. basalis*, Smith, but much larger and with dark legs.

Nomia opacula, sp. n.

♀.—Length about 9 mm.

Black; like *N. fletcheri* in the form of the head, the tegulæ (but the dark area larger), the hair on thorax, abdomen and legs, and the dagger-shaped tongue; clypeus shining, coarsely punctured, only very thinly hairy; white hair at sides of face and front, but not very abundant; front coarsely punctured, but vertex almost entirely impunctate; scape long, flagellum faintly reddish beneath; sides of prothorax expanded and sharp-edged as in *fletcheri*; mesothorax and scutellum dull, with a very few scattered punctures; base of metathorax polished, without sculpture, posterior face dullish; mesopleura rugose. Wings strongly dusky, stigma reddish brown, nervures fuscous; b. n. strongly bent, meeting t.-m.; first r. n. meeting second t.-c.; third s.m. not so long as in *fletcheri*. Legs black, with pale hair. First two abdominal segments dull and impunctate; bands of white tomentum at bases of second and third segments, disc of fourth covered

with white hair, except a median transverse band, fifth with much white hair.

Nasik, India (*Comber*).

Sent by Mr. Meade-Waldo as *N. virgata*, Ckll., which it only superficially resembles.

Nomia chaprensis, sp. n.

♀.—Length about 7.3 mm.

Robust; head, thorax, and legs black; abdomen polished, clear ferruginous, with a black band on middle third of second segment, just before the depression, third and fourth segments with entire black bands, broadened at sides, slender in middle; fifth segment and apex black; head broad, orbits converging below; mandibles red in middle; clypeus finely rugoso-punctate, supraclypeal area shining; face and front covered with pale slightly ochreous-tinted hair; flagellum dark reddish beneath; mesothorax and scutellum shining, with very fine punctures; thorax above with rather dense short pale ochreous hair; prothorax ordinary; posterior face of metathorax polished, rounded, with weak punctures; basal area small and not evidently sculptured, but there is a linear transverse groove in which are fine rugæ; tegulæ small, fulvous. Wings hyaline, stigma and nervures pale ferruginous; b. n. falling short of t. m.; second s. m. narrow, receiving first r. n. beyond middle. Legs with pale ochreous hair, hind basitarsi broad, small joints of tarsi red. Abdomen without hair-bands, but fourth and fifth segments apically with thin yellowish hair.

Chapra (*Mackenzie: Fletcher*, 3).

I do not know any closely allied species. The short, broad, bare, red abdomen is distinctive.

Nomia chalcea, sp. n.

♀.—Length about 9 mm.

With the aspect of an *Andrena*; head, thorax, and legs black, tarsi reddish apically; abdomen with first segment red, second red with a broad black band, third black with extreme base and broad apex red, remaining segments black, the hind margin of fourth pellucid; mandibles dark reddish beyond middle; clypeus dullish, very finely rugose, conspicuously depressed in middle; face with very thin whitish hair; front extremely minutely punctured; scape long, flagellum red beneath except basally, broadly so at apex; mesothorax and scutellum shining, with hardly noticeable minute punctures; thorax above sparsely hairy, except the

tomentose postscutellum; prothorax ordinary; sides of thorax hoary with pale hair; posterior face of metathorax rounded, shining, hardly sculptured, basal area smooth and polished. Legs slender, with glittering pale hair, ferruginous on inner side of tarsi; hind tibiæ with hardly any scopa; tegulæ ordinary, testaceous, with broadly fuscous base. Wings strongly brownish; stigma large and piceous, nervures sepia; b. n. meeting t.-m.; second s.m. narrow and small, receiving first r. n. in middle. Abdomen shining, without distinct punctures and without hair-bands; the red hind margins of first two segments broadly depressed.

Manantoddy, Wynad, India, 2500 ft., Nov. 17, 1917 (*T. R. N.*: *Fletcher*, 33).

Nomia immsi, sp. n.

♀.—Length 6·3 mm.

Head and thorax black, with rather abundant white hair, not, however, hiding surface of mesothorax; legs dark rufopiceous, with much white hair, the hind tibiæ with a broad scopa; hind knee-plate large and conspicuous; abdomen broad, shining, first segment clear ferruginous with a pair of dusky spots, remaining segments black, with hind margins of 2 to 4 broadly testaceous hyaline; no distinct hair-bands. Mandibles red in middle; head broad, sides of face and front with much white hair; clypeus finely punctured, glittering between the punctures, not depressed in middle; supra-clypeal area very large, convex, polished, with sparse distinct punctures; flagellum reddened beneath beyond middle; vertex closely punctured; mesothorax and scutellum shining, with sparse fine punctures; metathorax rounded, the basal area smooth and polished; tegulæ small, testaceous. Wings clear hyaline, stigma rufopiceous, nervures pale brown; b. n. regularly arched, falling short of t.-m.; second s.m. very narrow, receiving first r. n. in middle; third s.m. very broad above. Abdomen not distinctly punctured.

Dehra Dun, India, 1. 5. 1912 (*A. D. Imms*: *Fletcher*, 39).

Nomia burmica, sp. n.

♂.—Length 7·3 mm.

Black, with the extreme apex of abdomen, the knees, tibiæ, and tarsi ferruginous; legs slender and unmodified; tegulæ ferruginous, not enlarged. Head broad, eyes black, converging below; mandibles rufous beyond middle; face and front densely covered with glittering pale golden hair; antennæ very long, flagellum ferruginous beneath; front and vertex dull and granular; mesothorax and scutellum densely

covered with felt-like brownish-ochreous tomentum; area of metathorax rather large, dull, finely rugoso-plicate basally; truncation below area with ochreous hair. Wings flavescent hyaline, the apex dusky; stigma large, ferruginous, nervures fuscous; b. n. falling short of t.-m.; second s.m. about square, receiving first r.n. at middle; third s.m. broad above. Abdomen very finely punctured, the depressed testaceous apical margins of segments covered with pale ochreous tomentum; fifth ventral segment emarginate and with a pair of tubercles.

Tatkon, Upper Burma, Sept. 6-7, 1914 (*Fletcher*, 45).

Nomia perconcinna, sp. n.

♀.—Length about 8.2, anterior wing 6.5 mm.

Black, robust, with the hind margins of the first four abdominal segments having white tegumentary bands, very narrow on first, broadest on fourth; tegulæ ordinary, reddish fuscous; postscutellum unarmed. Head broad, sides of face and front with white hair; mandibles black; clypeus dull, finely rugoso-punctate, slightly depressed in middle; front dull; scape long, flagellum bright ferruginous beneath; mesothorax and scutellum shining, the mesothorax closely and finely punctured, the scutellum polished, with large punctures at sides and middle; posterior face of metathorax truncate, margined, finely rugulose, with very little hair; basal area opaque, without evident sculpture; mesopleura glistening, and with white hair. Legs black, with pale hair, yellowish on inner side of hind tibiæ and tarsi, the tegument of apical part of hind tibiæ red on inner side. Abdomen glistening, first segment very finely and closely punctured; apex with short dark fuscous hair, but sides of apical part with glittering silvery hair; second and third ventral segments stained with red.

Dehra Dunn, India, May 3, 1909 (*I. R.*, 88: *Fletcher*, 26).

Allied to *N. albofasciata*, Smith, and *N. argenteobalteata*, Cam., differing in pubescence and sculpture of thorax.

The following table readily separates the above new species of *Nomia*:—

Tegulæ enlarged, with a broad white posterior lobe	1.
Tegulæ ordinary	2.
1. Mesothorax polished and conspicuously punctate. Mesothorax dull and hardly punctate.....	<i>Fletcheri</i> , Ckll. <i>opacula</i> , Ckll.
2. First abdominal segment red	3.
First abdominal segment black	5.